

## ABSTRACT

A long-term implantable arteriovenous shunt device is provided that can be used as a therapeutic method. The shunt device is implanted between an artery and a vein, preferably between the aorta and the inferior vena cava. The shunt device decreases the systemic vascular resistance and allows a blood flow rate through the shunt device of at least 5 ml/min after the implantation. The blood flow rate could be controlled either via an open loop or a closed loop control means. The shunt device could also be a self-adjustable shunt device to self-adjust its structure to control the blood flow rate through its lumen. Based on the effects of the shunt device to the respiratory, cardiac and circulatory system, the implantable shunt device could be beneficial as a therapy to patients with problems or conditions related to these systems.